

U. S. DEPARTMENT OF LABOR
WORKING CONDITIONS SERVICE

GRANT HAMILTON, Director General

HOW TO GIVE
ILLUSTRATED LECTURES ON
ACCIDENT PREVENTION
TO WORKMEN



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HOW TO GIVE ILLUSTRATED LECTURES ON ACCIDENT PREVENTION TO WORKMEN.

By ROY S. BONSBIB, *Chief, Division of Safety Engineering, Working Conditions Service.*

FOREWORD.

The withdrawal of 40,000,000 men directly and 200,000,000 indirectly from the occupations of peace and their employment in the work of pure destruction and waste, to say nothing of the millions already killed or hopelessly maimed, compelled modern industry to wake up to the fact that the human element must be conserved and made as efficient as possible.

Thousands of dollars have been spent in safeguarding machinery, but little attention has been paid to the men who operate the mechanism. Mr. Charles B. Scott, of the Bureau of Safety of Chicago, found in a recent investigation that about 88 per cent of accidents are due to man failure and not directly chargeable to machinery. It is, therefore, necessary to educate the workmen themselves in the hazards of their respective occupations and the importance of playing the game safely.

I. HOW TO BEGIN THE LECTURE.

There are two general methods of opening an address so as to enlist the interest of the men at the start.

The first is the joke or funny story, a good example of which is the following anecdote used by Mr. Scott, of the Bureau of Safety, Chicago, in a recent address on accident prevention:

Several years ago I had the pleasure of listening to a most interesting address by the late Elbert Hubbard, who went down on the *Lusitania*. Mr. Hubbard was discussing the subject of men being born for certain accomplishments in life, and he maintained that men were so born with these qualifications and tendencies. He said, "For instance, James J. Hill, who owned most of the railroads in the Northwest, and who recently passed away, was a born money-maker. When Jim was a young man he had charge of a railroad section in the Northwest, and with three other men boarded at the Farmers' and Merchants' Hotel in the small town. Jim and these associates made about the same wages—\$47.50 a month. There was a very comely and beautiful young lady

that was accustomed to wait on the table where these young men ate and one day just before Christmas, Jim said, 'Boys, let's do something for the girl.' They said, 'All right, Jim, we've been thinking about that.' Jim said, 'Well, will you fellows do whatever I do?' And they said, 'Yes.' And so Mr. Hill surprised them by pulling a twenty-dollar gold piece from his pocket and spinning it on the table. Some of the fellows almost went under the table and they said, 'Jim, you are not going to give her that, are you?' Jim Hill said, 'Yes.' One fellow said, 'I've only got ten dollars.' Jim said, 'Give me the ten dollars and your note for ten and I will put up the twenty for you.' They raised the eighty dollars and presented it to the young lady. The next day Jim Hill married the girl."

The second method of opening a talk for workmen is some startling statement as this, taken from a paper on "Accident Prevention as a Business Proposition," by Samuel H. Reid:

Recent figures from the Bureau of Labor Statistics, Washington, D. C., show that there are 38,000,000 wage earners in the United States and that of these 38,000,000 wage earners 700,000 lost members of their bodies, or are so seriously injured that they are laid up on account of accidents for an average of four weeks each, every year of 300 working days. 700,000 wage earners lose an average of 28 days each year from injuries. That means a loss of 19,000,000 working days every year—or reducing it to a yearly basis, a loss of 65,333 years—a monetary loss of at least \$50,000,000 in wages. Suppose we put this on a one-man basis: If a workman was injured 63,417 years B. C., he would be ready to return to work January 2, 1917, A. D. This wage loss of \$50,000,000 not only affects the employee and the large and small manufacturer, but filters down to the middle man, who handles the manufactured article, and the purchaser.

In spite of the fact that statistics are usually considered dull and tiresome, I personally prefer this second method of opening an address, because it starts the hearers to thinking at the beginning, and that is one of the fundamental purposes of lectures to workmen.

II. HOW TO ANALYZE THE PROBLEM.

The body or main part of the talk should then show the hazards of the occupation, how they can be avoided through safe practices and cooperation, the results of thoughtlessness and carelessness, and, finally, that it is the workman and his family that suffer the most and whose financial burden is far greater than that of the employer. In no case does the amount of compensation paid equal the income loss, to say nothing of the pain and suffering caused by accidents. It has been shown that a very large percentage of accidents is caused through carelessness and is preventable. Webster, among many synonyms for "careless" gives three which will help us to understand the problem of the careless workman: (1) Heedless, (2) inattentive, (3) rash. "Carelessness of the first kind need be considered but briefly," says Crystal Eastman in her book: *Work Accidents and the Law*.

It is exasperating and hopeless, but fortunately rare. A larger proportion of the "careless" cases belong rather under the term "inattentive."

What is carelessness? Human powers of attention are naturally limited in at least two

ways: Heed can be given to but a limited number of things at a time, and to any one thing for but a limited time. Moreover, in the condition and environment of these in "dangerous occupation," there are often influences working to weaken the power of attention, the speed and intensity of the work, the heat and noise of the place, the weariness of the workers—all these tend to numb the faculties most needed for protection.

Between inattention and recklessness or rashness there is a wider distinction. Neither kind of carelessness so far described is of the same nature as that of the brakeman who stands in the middle of the track to board an approaching yard engine, although he knows there is a safer way, or that of the machinist who throws a belt on without slowing down the shaft. Such acts as these are rash—the conscious taking of unnecessary risk. The deliberate failure to take a precaution is a kind of recklessness in which the chief element is haste. In the spontaneous, impulsive kind of recklessness, the moving spirit is varying, "taking chances," the gambling instinct. In almost all reckless acts connected with work, however, both these elements are present. There is some ease or time-saving secured by almost every risk that workmen willingly take. In addition, there is a carelessness due to lack of proper instruction as to what constitutes dangers, their consequences and proper precautions. The remedy is obvious.

It is such analyses of human tendencies that make a speaker able to get right at the heart of things. Psychology, the science of the human mind and its operation, may be "high-brow stuff," but it is very important. I venture to say that if executives and safety men were more familiar with the psychology of the workmen's mind, there would be fewer labor disturbances and accidents. Cultivate a sense of interest in your helpers and it will go far to inspire a similar feeling in them.

The type of talk which seems to appeal to workmen the most is the straight from the shoulder, conversational, almost one-syllabled word speech, on the subject of direct interest to themselves in their daily occupation. However, a mistake which safety men frequently make is in underestimating the workmen's intelligence, which, of course, hurts the man's self-esteem and antagonizes him. Most people, however, are not appealed to through their intelligence; their emotions must be aroused. The most effective way of appealing to the emotions is through the eye by means of pictures.

Best type of talk. An executive of the National Cash Register Co., one of the pioneers in the education of employees, says:

We believe in teaching through the eye, because:

- Why teaching through the eye is the best method.**
- (1) The optic nerve is 18 times bigger than the nerve from the ear.
 - (2) The eye transmits its impressions to the brain 25 times faster than the ear.
 - (3) When you talk with pictures you use both the eyes and the ears of your listeners in making them grasp your thought.

Thus, illustrated lectures offer one of the most effective means known to-day of attracting a man's attention, driving home the important points, and promoting safety, because pictures possess strong inherent interest value.

Pictures are the universal language and may be understood alike by all classes of people and all grades of intellect and all nationalities. It is a well-known fact that a child is attracted by pictures long before printed words mean anything to him. Everybody likes to look at pictures. Rolland Hall, an advertising expert, states that pictures give the argument or the description at a glance. They show what perhaps could not be fully described in 500 or 1,000 words. Boss Tweed, of New York, it is said, declared that he cared nothing about the word criticism of him that the newspapers published, but he shrank from having the people see cartoons of him; they could understand the pictures even if they didn't read editorials, and it is generally conceded that Nast's pictures put this political boss out of business.

III. HOW TO ILLUSTRATE THE LECTURE.

Lectures may be illustrated in three ways: (a) Slides, (b) films, (c) actual demonstrations of safe and unsafe practices. Each has its advantages and disadvantages.

The Chicago & North Western Railway Co. has used stereopticon slides in its safety work with good results for the past seven years, and for the past two years has used motion pictures in addition to the slides. Mr. Harry J. Bell, a member of this company's safety organization, says:

I believe there is a great educational value in the use of films, but ordinarily the feature of entertainment, instead of education, enters quite strongly into this method. The advantage with slides is that the attention is riveted on the particular subject on the screen; then, too, the speaker has opportunity to dwell as long as may be necessary in talking about any one subject. Most of our slides were made from photographs secured under our direction by our company photographer, the pictures being posed by our own men. He then makes them into slides, furnishing at the upper right-hand corner of the slide face a red tag, with his own file number. We use a white tag, placed at the upper left-hand corner, to indicate the order in which the slides on a particular occasion are to be shown.

I believe a good average as to time used in showing the slides would be to say that 60 slides should be shown in 30 minutes. It has always been our idea that a safety meeting or rally, especially one to which the families of the men or the general public are invited, should not last over an hour and a half.

On the other hand, Marcus A. Dow, general safety agent of the New York Central Lines, is a strong advocate of the moving picture. In a recent letter to the writer, Mr. Dow said:

In our opinion, lectures that are illustrated either by moving pictures or stereopticon views are the most effective and of the two the moving picture, if it is forceful and tells a dramatic story, is the one which will appeal to the men the most. We have been using moving pictures similar to

"The House That Jack Built" and "The Rule of Reason" for several years, and these moving pictures have done more to interest our employees in safety work than anything else. Lectures are not delivered while the picture is on the screen, because the pictures tell their own story. It has been our custom, however, to deliver a verbal lecture of from 20 minutes to half an hour, outlining causes of accidents and explaining to the men that it is necessary to obtain their cooperation to eliminate these accidents. The motion picture which follows takes about 40 minutes to show.

The National Founders' Association has also adopted the moving-picture method of illustration exclusively and has discarded slides, although they have a very large and complete collection.

For the past year and a half the Ford Motor Co. has been showing a 2,000-foot motion picture film to its employees, but has not made a practice of delivering any set lectures. This film deals with the guarding of machinery in the Ford factory and gives illustrations of the right and wrong way of working. The film requires about three-quarters of an hour, and it is explained by a representative of the safety department, who also emphasizes different points and submits appropriate statistics as the picture progresses. The pictures are shown to about 175 men each night, except Saturday, immediately after quitting time. As the employees work but eight hours, they do not object to coming to see the pictures.

We find that there is a noticeable change in the men after they have seen the practical illustration of what the company is doing to help them—

says a member of the Ford safety department.

There is a spirit of cooperation, open-mindedness, a desire to work the safe way and to help work out methods of preventing accidents. Naturally we feel that in the accomplishment of these points, our "Illustrated Lectures for Workmen" are thoroughly worth while.

In the United States Metals Refining Plant, at Chrome, N. J.,
Films and slides. talks on accident prevention are incidental parts of moving-picture performances. The program consists of four or five general films, some of which are educational, others simply amusing, sandwiched in between these are films showing accident work done by various industrial concerns. A series of lantern slides taken around the plant are shown to illustrate the right and wrong way of doing things and the dangerous places which might cause accidents. While the lantern slides are being shown, the welfare inspector explains them and gives a short talk. A separate performance is given to foreign-born workmen, an evening being devoted to each group. One of the foremen explains the slides and films to the audience in their native tongue.

It is far better to show pictures giving the results of accidents and how accidents occur than a lot of slides illustrating a mass of complicated guards. Such pictures may interest safety engineers and plant executives, but, as a rule, they don't appeal to the average

workman. In discussing this phase of the problem, Mr. Sidney Rollo, of the above mentioned plant, recently made this statement:

It is utterly impossible to make a man's mind stop automatically every time a dangerous incident arises, especially if he is quick and efficient. He must be taught, and it must become second nature to him to be careful, and not have to stop to think whether a thing is dangerous or not. Going into elaborate details of accidents is more for the safety engineer and management than for the men. We showed in one of our "Safety First" films, the result of carelessness on the part of a man who stepped on a nail, raising his foot and then saying "Ouch." This only tended to create a laugh, and I think it went by without much further thought. Later we showed a film where a fellow stepped on a nail, and then was stretched out with his foot held to the audience, the blood running out in great streams. This had its effect on the audience. Many of the men shuddered and the women began to cry. I am sure that this lesson struck home. Although it was only a small accident, the consequences were shown as well as the accident itself. One of our oldest plant slogans reads: "No Matter How Slight the Accident, Report It." Drive this into the men and they will become ashamed and avoid carelessness for no other reason. Above all, even if the workmen to whom you have to speak, are skilled, don't make your address technical. Even engineers and chemists have been known to fall asleep at technical lectures.

Where a large percentage of the employees are foreigners, the pictures should be depended upon to "deliver the goods" and eliminate the lectures altogether; however, it is well to have a man present to answer questions. Where it is impossible to show films or slides then the talk or lecture should be accompanied by demonstrations of artificial resuscitation or first aid, in which men taken directly from the audience can actually take part. This will arouse the interest to a very great degree because it gives the subject a more human or personal touch.

IV. HOW TO ARRANGE AN EFFECTIVE PROGRAM.

There never yet lived a normal woman who ever lost interest in romance; therefore, show one picture depicting a love story. However, this must be reserved to the last so that there will be no danger of the audience leaving before the show is over. The first picture should be a comedy, to make the kiddies laugh; this will put the man in good humor and a receptive mood. Now, as to the safety educational film—for there should be but one—it should be appropriate to the occasion at all times. That is to say, a picture intended for railroad men should not be shown to miners, nor should one illustrating accident prevention in mining operations be shown to mill operatives. The film should be of such a character as to arouse a man's interest in the fundamental principles of accident prevention. His familiarity with his occupation naturally makes him careless, unless he has been made to realize that no matter how skillful a workman he may be he is not immune from injury if he is careless.

C. L. Andersen, an engineer at the East Chicago plant of the United States Metals Refining Co., hit the nail on the head when he made this statement:

We have always been in the habit of showing pictures that were supposed to teach the worker how to avoid accidents. This is unnecessary and useless. Every worker of ordinary intelligence knows all the hazards of his occupation, of course, excepting those hazards where poisonous and deleterious substances are involved, but including all that can be shown in a picture. He knows that if a loose sleeve or apron is caught on a revolving shaft he is liable to be torn asunder. He knows that if a flying chip enters his unprotected eye, he may lose his sight. He knows that if a heavy load drops from an overhead crane, and lands on his head that it will kill him. To show these things in a picture does no good. The average workman thinks himself too clever to be caught in this way; anyway he likes to take chances. He so hates to be a coward.

Now, instead of showing how to avoid accidents, show the man why he should avoid them. Instead of appealing to his fear, appeal to his fatherly love, to his paternal instinct; in other words, get a strangle hold upon his heart instead of upon his reason, and the battle is over. To do this, show, for an example, a picture that tells the story of a careless father who was killed through his own carelessness, and depicts the heartrending anguish and terrible hardships that his mother, sister, wife, and innocent children had to endure because of it. If this will not, in time, make him a careful man, nothing upon this earth will.

If a large per cent of the employees are foreigners, experience has shown that giving out printed invitations or tickets to the men will cause a better turnout than a posted or verbal notice. It seems that the acceptance of such a card makes the man feel obligated to come and bring his family. It also gives them more courage to enter a strange building.

V. WHEN IS THE BEST TIME TO HOLD MEETINGS?

Meetings may be held during the noon hour, at quitting time or in the evening. While the first two have the advantage of having the men at the plant, there is the disadvantage that they are either in a rush to get home, or are liable to bolt their food instead of eating it properly. However, the Pullman Car Co. and the General Electric believe that the noon hour is the best.

In writing on this subject to the author, Mr. S. W. Ashe, of the General Electric educational department, says:

In giving our talks in the shop during the noon hours, we found it desirable to start about 12.30 p. m., and stop at 10 minutes to the hour. To attract attention to the talk we used an easel, on which we mounted bulletins, broken goggles, and things of a safety nature. Then again it is a good plan to get the foremen together in a regular lecture room where you can give them an hour's talk on the company's time, illustrated by lantern slides on your various safety methods.

The Pullman Co. is another advocate of the noonday meeting.

**The Pullman
plan.**

However, this meeting, which is held in the men's main dining room, is confined almost entirely to moving pictures with occasional slides with safety slogans and talks by the safety engineer. The program is arranged so that it will be both entertaining and instructive. Only one reel of pictures is shown, starting promptly at 12.30 and ending at 12.45 p. m. There is a \$250 electric Victrola which was presented to the men by Mr. Charles Schwab and which is played during the picture. The following is the weekly program:

Monday: Comedy.

Tuesday: Ford Weekly.

Wednesday: Industrial.

Thursday: Drama.

Friday: Hearst-Pathe Weekly.

Saturday: No picture. Men quit at noon.

The men take an intense interest in these pictures and a great deal of good is accomplished. The object of the comedy on Monday is to help counteract the proverbial "Monday blues."

Reels may be secured for about \$1.25 apiece from any film exchange, a list of which will be furnished upon request, and a good moving picture machine may be purchased at a very reasonable cost. A list of makers and handlers of picture machines and supplies will also be furnished upon request.

**Reels, ma-
chines.**

Personally, I believe that the practice of noonday pictures and talks should be more universally adopted. The principal chambers of commerce in the United States and numerous other organizations have found that noonday meetings are better attended because men like to have their evenings free to spend with their families, to attend theaters, social functions, or lodges. In order to maintain interest in noonday meetings, a solo or short musical selection by "one of the boys" should be added.

The best time.

Evening meetings have the advantage of catching the men in a more restful state of mind. His day's work is over, he has had a chance to wash up, eat his supper, and enjoy his evening's smoke, and is, therefore, in a more receptive mood. However, there is the disadvantage that unless there is a very strong appeal he doesn't like to leave home. Nearly all of the railroads and industries hold their meetings in the evenings. It has been found that from 7.30 to 8 o'clock is the best time. Experience has shown that the most effective length of meeting is an hour, although if the pictures are especially interesting they may last longer, but in no case should they extend over 90 minutes.

**Evening meet-
ings.**

These evening meetings or moving picture entertainments should be held at frequent intervals, say, twice a month, and should be made a

family affair, because one of the best ways of securing the attention of the working man is to get his wife and children interested in safety and accident prevention.

VI. WHERE IS THE BEST PLACE TO HOLD MEETINGS?

Meetings or lectures may be held out in the plant, in the men's dining room, or special meeting places such as halls, theaters, and, in the case of railroads, special instruction cars. Meetings may also be held in the foremen's homes or the boarding houses of the workmen. In the Pittsburgh district many out-of-door meetings with safety films have been given during the past season, generally in the public parks. To be the most effective, I believe meetings should be held in some hall or auditorium, centrally located, and should never be held in the plant. The men see enough of the plant during working hours. The New York Central lines have two motion-picture cars provided with fireproof projecting rooms.

CONCLUSIONS.

From the foregoing data it appears that the most effective way of promoting accident prevention is through the use of short talks about 30 or 40 minutes long, illustrated with slides and moving pictures showing the results of accidents, rather than how to avoid them; that these lectures and pictures, where there is a large percentage of foreigners, should be held at the noon hour, in the dining room of the men, or in the case of evening meetings at 7.30 or 8 p. m. The evening meeting should be held in some central location and should be made a family affair.





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